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# Inflation Aversion in the European Union: Exploring the Myth of a North-South Divide

## **Abstract**

*Our study seeks to put the assumptions of German Stability Culture to the test. The concept is a core legitimizing element of economic policy discourse in Germany and used regularly to juxtapose Germany and northern Europe and the euro area periphery. Using Eurobarometer surveys we construct a measurement for Stability Culture which is based on the priority assigned to the fight against inflation. Our empirical analysis covers the 2002 to 2010 timespan and includes 27 European Union Member States. Our results show that the distinction between northern states with an allegedly strong and southern states with an allegedly weak Stability Culture is a myth. Controlling for actual inflation, we find that the northern Member States with an allegedly high Stability Culture are less concerned with price stability than the rest of the EU.*

SER Keywords: culture, Europe, Germany, socio-economics

JEL Classification: Z1

## Introduction

The concept of Stability Culture has been manipulated by German Christian Democrat politicians and a range of German policy makers both as a diagnosis of and remedy to the European Sovereign Debt Crisis (Howarth and Rommerskirchen 2013). Stability Culture refers to a common policy perspective the primary concern of which is low inflation (price stability). The Sovereign Debt Crisis, so the argument propagated by Stability Culture champions goes, was brought on by a failure to establish a firm German-style Stability Culture across the Eurozone. In the words of the former Bundesbank president Helmut Schlesinger<sup>1</sup> (2012), the crisis can be identified as a problem of ‘different mentalities’ and the omission in the Maastricht Treaty of a requirement that ‘all Member States have the same Stability Culture’. This diagnostic is echoed by the demand of the AfD (Alternative for Germany, 2014) — an anti-euro party established in 2013 which achieved almost 5 percent of the vote in the national parliamentary election of the same year — for an ‘ordered break-up of the current Eurozone and the establishment of stable currency unions of countries with a similar Stability Culture’. The German Chancellor Angela Merkel’s official cure to the Sovereign Debt Crisis strikes a similar, though non-secessionist, note. In May 2010 she declared herself guardian of the Stability Culture: ‘I will take care that we make sure together with our partners that the whole of Europe commits herself to a new Stability Culture’ (Merkel 2010a). In so doing, cultural atonement was considered a priority: ‘My focus will be for us to make clear that the Stability Culture has to improve’ (Merkel 2010b). Merkel’s project of a pan-European Stability Culture, a distinctly German project, does little to shroud the fact that Stability Culture discourse is inherently discriminatory and divisive. It pits allegedly ‘good’ Stability Culture countries (such as

Germany, Finland, Austria and the Netherlands)<sup>2</sup> against allegedly ‘bad’ countries lacking a Stability Culture (such as Greece, Spain, Portugal and Italy).

It would be precipitous to dismiss the discourse on Stability Culture as political window-dressing (although it has elements of this). The promotion of Stability Culture by German politicians has far-reaching policy implications, notably regarding the prescription of fiscal consolidation for the sake of price stability. Despite its role in guiding policy responses to the European Sovereign Debt Crisis, its axiom of cultural superiority / inferiority has not been subject to a comprehensive investigation. Beyond scarce evidence presented from summary statistics (Collins and Gavanzzi 1992; Hayo 1998), a systematic analysis of the variation of Stability Culture in the European Union (EU) is still wanting. Our analysis seeks to address this empirical blind spot. This article will proceed as follows: First, we explore the history and politics of Stability Culture. The subsequent section discusses our measurement of inflation aversion, model specifications and data. We then present the empirical results and robustness tests and discuss our main findings. Using Eurobarometer surveys we demonstrate that the population in the core countries of the alleged Stability Culture stronghold are less inflation averse than in the rest of the EU.

### **The history and politics of Stability Culture**

We understand the term Stability Culture as a paradigm of price stability shared by politicians, central bankers and the population at large which is considered to constitute a vital framework for the market economy and the preservation of social peace (see Dyson 2000). ‘Stable money’, so the argument goes, ‘is the foundational contract of democracy’ (Brüderle 2013). In this study we focus on Stability Culture as political culture, and therefore on public opinion in the EU member states, not the views of political elites. At

its core, Stability Culture is not an elite phenomenon. Rather it is firmly anchored within political and socio-economic culture. In its origins, this ‘culture of stability’ is considered by many to be a fundamental characteristic of German political culture (Mertes 1994: 6). Along similar lines, Richter (1991) understands Stability Culture as a ‘social concept’ anchored in the consciousness of the population.

Stability Culture has also been considered a key element of the success or failure of Economic and Monetary Union (EMU) (see Bofinger *et al.* 1998). German architects of EMU insisted that the Eurozone had to be founded on a durable ‘stability-orientation’ (*dauerhafte Stabilitätsorientierung*) (Dyson 2014). This ordo-liberal blueprint for monetary integration goes beyond political elites. Hayo (1998) claims that the design of the European Central Bank (ECB) is merely one part of a stability regime that must be reinforced with public attitudes in favour of price stability. Public opinion is thus said to become a ‘significant precondition’ of the success and longevity of EMU (*ibid.* 244).

This study — to the best of our knowledge the first to systematically investigate actual inflation aversion of individuals (Stability Culture) across EU countries — also functions as a much needed reality check. The widespread German discourse on Stability Culture in the context of the ongoing Eurozone crisis, does not stop at the (in)capacities of various national political elites, but can also involve sweeping statements about national populations at large. Three well-known examples of this sweeping discourse include: the portrait of ‘lazy Southerners’ and ‘efficient Northerners’ in former Bundesbank Executive Board member Thilo Sarrazin’s 2012 bestseller *Europe doesn’t need the euro* (2015); the campaign mounted by the high circulation German tabloid newspaper Bild against ‘billions for greedy Greeks’; and Chancellor Merkel’s portrait of ‘southern Europeans’ as work-shy and too fond of holidays and early retirement (*EU Observer* 19 May 2011). The concept of

Stability Culture is not confined to Germany's borders — see, for example, the views of Sweden's former Minister of Finance, Anders Borg (Scocco 2015) — but the portrait of Germans as inflation averse is particularly widespread (e.g., Rehn 2012; *La Tribune* 22.01.2015; *Financial Times* 14.8.2013, *The Economist* 15.11.2013).

The policy prescriptions of Stability Culture entail a mantra of fiscal restraint with the aim of achieving price stability. One of the alleged by-products of a Keynesian approach to demand management is higher inflation. Cottarelli *et al.* (1998), for instance, argue both deficit and debt levels have a significant effect on inflation. Yet, a positive deficit/debt-inflation correlation has also been challenged by a number of scholars, who see at best a tentative link. Catao and Terrones (2005), for example, argue that the relationship does not apply to low-inflation advanced economies. We argue that the economic accuracy of this alleged transition mechanism is only secondary for our analysis: at the heart of the construction of the pan-European Stability Culture is the claim that high deficits cause inflation (*cf.* EMI 1996). This assertion was repeated with the reformed Stability and Growth Pact<sup>3</sup> (Gonzalez-Paramo 2005), in the aftermath of the 2008/2009 recession (Stark 2010), and in the context of the European Sovereign Debt Crisis (Bundesbank 2013). Indeed, the German debate on (monetary policy) responses to the Eurozone crisis is framed by the concern over rising inflation, from eurobonds to the ECB's quantitative easing bond-buying — referred to by the most-read German newspaper as 'the ECB tsunami' (*Bild* 2.2.2015). In the on-going debate on the speed and scope of budgetary consolidation efforts, the link between fiscal profligacy and rising inflation has been presented as justification for fiscal consolidation. In a *Financial Times* opinion-piece, for example, the German finance minister Wolfgang Schäuble stressed the need for 'expansionary fiscal consolidation', stressing that Germany was 'more preoccupied with the implications of excessive deficits and the dangers of high inflation' (Schäuble 2010).

Schäuble's justification for Germany's alleged preoccupation with inflation is in line with the founding myth of Stability Culture, dating back to the collective memory of the hardship and suffering the German population experienced during the hyper-inflations of 1921-23 and the pent-up inflation of 1936-48. This experience resulted in people haunted by the spectre of 'laundry baskets full of money' (Billerbeck 2015) — 'the fear of hyperinflation is printed in the German genome' (Brüderle 2011). The link between Hitler's rise to power and Germany's inflation drama has been widely discredited (Blyth 2013: 59ff)<sup>4</sup>, notably as the years leading to the Third Reich were marked by recession which was linked with deflation and high unemployment. Singling out the German experience of runaway price-rises in the 1920s furthermore ignores that other countries share 'memories of high inflation' (Ehrmann and Tzamourani 2009). Comparing the German hyperinflation of the early 1920s to 64 other periods of worldwide hyperinflation in the twentieth and twenty-first centuries, it is evident that the experience of the Weimar Republic is hardly exceptional (Hanke and Krus 2012). And yet singling out the preoccupation with inflation of the German population and a significant section of its political class appears comparatively distinctive, exaggerated and, it might be argued, extreme (see Howarth and Rommerskirchen 2013).

Given the strong presence of the term Stability Culture in European politics, it comes as a surprise that no study to date, as far as we are aware, has set out to test the premise on which it rests. Are the populations of Southern European countries less inflation averse than the alleged model pupils of Stability Culture?

### **Quantifying Stability Culture as inflation aversion**

At the heart of Stability Culture is a concern about price stability. As the preceding discussion suggests, the fear of inflation — inflation aversion — has thus been a central yardstick for a country's Stability Culture. Individuals, however, seem to have difficulties to perceive price developments correctly and are often unable to assess actual inflation properly.<sup>5</sup> The discrepancy between actual inflation and the fear of inflation during the sovereign debt crisis is a case in point. Draghi's frustration (2014) with what he calls the 'perverse angst' of inflation in Germany should be seen against the backdrop of a monetary policy community worrying about low inflation turning into outright deflation (*Financial Times* 24.1.2014). Thus, since it is not the actual knowledge about inflation rates that matters for stability culture but rather perception, the main empirical task is to measure inflation aversion.<sup>6</sup>

Three main approaches to measuring inflation aversion can be found in the literature:

1) Inflation aversion can be captured by the preferences about inflation of policy makers. Krause and Mendez (2005) and Heinemann *et al.* (2014) base their measurement on revealed preferences obtained from macroeconomic data. This policy maker centred measurement is then thought to reveal the emphasis policy makers place on inflation stabilisation. LeMay-Boucher and Rommerskirchen (2014) use 'economic orthodoxy' (a variable in the *Comparative Manifesto Project*) to measure governments' commitment to low inflation as based on party programmes. Since the present study is concerned with the inflation culture of the population, not political elites, we shun away from using a similar measurement.

2) Inflation aversion can also be modelled as the sensitivity of wellbeing to inflation. Di Tella *et al.* (2001) examine how respondents' reports of their wellbeing vary with



national levels of unemployment and inflation. Collins and Giazanzzzi (1992) adopt a similar approach but with two notable differences. First, they are interested in how inflation and unemployment affect respondents' assessment of their general economic condition, not of their happiness. Secondly, and more importantly, instead of using real inflation and unemployment rates, the respondents' *perceptions* of changes in price levels and unemployment are taken as the independent variables. A further 'indirect way' to measure inflation aversion is to analyse the relationship between a country's inflation performance and the popularity of governments (cf. Hibbs 1982) or satisfaction with the practice of democracy (Clarke *et al.* 1993). Whilst all of these studies offer insight into the dynamics of a population's attitudes towards inflation, they have the drawback of presenting an indirect measurement of inflation aversion.

Hayo (1998, for a similar approach see Hayo 2010) uses a variant of the sensitivity analysis by examining the sensitivity of public inflation aversion to a rise in inflation (in single country regressions without control variables). Countries with a strong Stability Culture, like Germany are found to be more sensitive to rises in inflation. We find this approach inappropriate for a simple reason: populations can show high inflation aversion irrespective of the actual level of inflation and changes to the inflation rate (see Draghi's comment above).

3) A third approach is to ask individuals survey questions specifically about inflation. Farvaque and Mihailov (2009) use the International Social Survey Program (ISSP) 2006 survey of 33 countries concerning the role of government in society. Specifically, their measure of inflation aversion is based on the answer to the question whether respondents 'think it should or should not be the government's responsibility to keep prices under control'. Yet it is questionable whether the implicitly assumed inflation aversion and

government responsibility are solidly linked. Respondents might be of the opinion that governments are in charge of keeping prices under control without being particularly inflation averse or worried about inflation. What is more, the formulation ‘under control’ is sufficiently vague for individuals with a high tolerance for inflation rates to give a positive answer. One can also distinguish between surveys that rank inflation against other economic issues and those that juxtapose inflation and non-economic issues. On the former, Scheve (2004) and Jayadev (2006) use the 1996 version of the ISSP survey. Inflation aversion is based on giving inflation priority when asked whether governments should fight unemployment or inflation. This indicator explicitly relates to the kind of Phillips curve mechanisms discussed below. Other studies use survey questions about the priority of the fight against inflation relative to non-economic values, specifically ‘maintaining order in the nation’, ‘giving people more say in important government decisions’ and ‘protecting freedom of speech’ (Hayo 1998; Ehrmann and Tzamourani 2009; Ehrmann 2014).

Our approach examines the priority assigned to controlling inflation in relation to both economic and non-economic goals. We base our analysis on Eurobarometer surveys where respondents are asked about the two policy priorities currently facing their country with inflation/maintaining price stability being one possible option. Specifically, various Eurobarometer surveys from 2002-2010 (cf. Appendix) include the question: ‘What do you think are the two most important issues facing (OUR COUNTRY) at the moment?’. Inflation aversion is assumed to be strong if ‘rising prices/inflation’ was among the issues named.<sup>7</sup> Inflation as a policy concern thus competes directly with other economic and non-economic goals. Contemporary data that pits inflation explicitly against unemployment, similar to Scheve (2004), is unfortunately not available for our purposes given that we are interested, first, in the post-2001 period and, second, in tracking inflation aversion across all EU members over time.<sup>8</sup> We should note that Scheve’s (2004) results do not relate to

our main research question, as the underlying data does not allow for testing systematic differences between countries.<sup>9</sup>

The absence of survey results on individual concerns about (rising) deficit/debt levels prevents us from analyzing the fiscal component of Stability Culture. Given that, as we argue above, Stability Culture emanates first and foremost from inflation aversion, this should not bias our analysis. At the same time, we welcome future research into the fiscal dimension of Stability Culture beyond single-country studies (e.g., Hayo and Neumeyer 2013; Heinemann and Henninghausen 2012). Further analysis (and new data) is also needed to investigate the preferences of political elites, capital and labour, and how these pertain to a country's Stability Culture (*cf.* Posen 1993; Franzese 2001). New data would furthermore be needed to move beyond a binary understanding of inflation aversion, where individuals are either inflation averse (1) or not (0). What is more, we are likely to miss individual country and year specific factors, such as the emergence of pressing issues that may shift policy concerns. Since our measure of inflation aversion is based on the ranking of competing policy issues, a country-specific environmental catastrophe or foreign policy conflict may well appear to reduce inflation aversion.

Our observations include 27 Member States, with the EU-15 being included since 2002 and the new EU Member States since 2005. This leaves us with 197,742 observations at the individual level and 176 observations at the country level. Table 1 reports descriptive statistics of the inflation aversion measure by country between 2002 and 2010, taking the mean inflation aversion (since 2005 for the new EU Member States). Some interesting observations suggest themselves. First, there are large differences in the average relative inflation aversion between countries, from a low of 3.1 per cent of respondents in Sweden to a high of 34.69 per cent of respondents in Latvia. Second, it appears that German

respondents (mean 17.30 per cent) are less inflation averse than Greek ones (mean 21.21 per cent), whereas there is little difference between the inflation aversion of Eurozone Member States (mean 20.73 per cent) vs. non-Eurozone Member States (mean 19.67 per cent). Figure 1 summarises the distribution of inflation aversion (2002-2010) with a box plot. For each country, the box contains the inter-quartile range (a measure of statistical dispersion) of inflation aversion, the medians are marked with dark lines, the whiskers indicate the range of the more extreme values and the dots mark any outliers. Overall, annual inflation aversion ranges from 1.27 per cent (Sweden in 2005) to 70.93 (Latvia in 2008). Figure 1 highlights substantial variation across countries as well as within countries. Note however that only 4 per cent of the variation in inflation aversion is due to between-country variation. Despite clear differences between countries, inflation aversion in the time period under scrutiny follows two trends: first, the decline in inflation aversion up to the eruption of the financial crisis; and second, the subsequent soaring of inflation aversion post 2008.

It is likely that the respondents' inflation aversion will be influenced by rising prices. We compute the rank correlation coefficients between both variables for each of the 27 countries. We rank the countries according to their mean inflation aversion between 2002 and 2010 and compare that ranking to the ranking according to their mean inflation rate in the same time period. We use the Spearman rank correlation to assess the correlation of these rankings. Based on this test ( $r = 0.57$ ,  $n = 27$ ) there seems to be a clear correlation between inflation aversion and actual inflation in the European Union. On the overall country level, the correlation between annual national inflation aversion and national inflation rates points to a similar relationship ( $r = 0.52$ ,  $n = 194$ ) as does, albeit less strongly so, the correlation coefficient on the individual level ( $r = 0.2$ ,  $n = 192,755$ ). Figure 2 further illustrates the link between inflation and inflation aversion. Yet as can be seen from Table

1, in some countries the discrepancy between the real inflation context and the mean inflation aversion is quite stark.<sup>10</sup> Taking the ranking of inflation aversion tells us about the context-specific inflation aversion, but is of little use to determine the political economy determinants of inflation aversion beyond correlational findings. In order to investigate the dynamics of inflation aversion, it is desirable to control for the current economic context as well as for political and individual level factors.

### **Data and Econometric Model**

To analyse the determinants of cross-country variation in public inflation aversion, we examine survey-based measures of inflation aversion in the 27 EU Member States between 2002 and 2010 as described above. The non-Eurozone EU countries serve as control group. This empirical analysis will be carried out on both the individual and the country level. A detailed description of all variables can be found in the Appendix.

#### *Dependent variables*

On the individual level, INFLATION AVERSION is a binary variable taking the value 1 if the respondent is inflation averse and 0 otherwise. On the country level INFLATION AVERSION takes the percentage of respondents of a country in a given year naming the fight against inflation as one of their country's two main policy priorities. One of the strengths of our analysis is that it takes both individuals as well as whole countries as units of analysis. Public opinion studies are known often to yield disparate estimates depending on which unit of analysis is used. Testing our hypothesis on both levels thus renders our results more robust and more readily comparable to studies using either model.

#### *Independent variables*

To control for the *Stability Culture hypothesis*, we construct country group dummies for the allegedly wayward states of EMU (SOUTH: Portugal, Ireland, Italy, Spain, and Greece) as well as the alleged model pupils of Stability Culture (NORTH: Germany, Austria, Netherlands and Finland).<sup>11</sup> We furthermore control for EMU membership to test whether monetary union has an impact on individuals' inflation aversion. The variable EURO, taking the value 1 if a country is a member of the Eurozone / if the respondent lives in a country that is a member of the single currency union. If joining the common currency area would indeed lead to a 'stability culture across Europe', as attested by the former German Finance Minister Theo Waigel (1997), the variable EURO should have a positive effect on inflation aversion. In this line of argument, the convergence of popular inflation aversion is considered to underpin the political sustainability of EMU, as it 'depends on the consolidation of the Member States into a political community based on shared beliefs' (Sadeh 2009: 545). Again, we argue that the consolidation of such 'political community' is not confined to political elites, but must encompass the population at large (see also Anderson 2006: 114-115). The assumption of EMU consensus on the importance of low inflation is compatible with both a 'top-down' process and a 'bottom-up' process of mass public opinion (cf. Risse-Kappen 1991). Public opinion was as much a factor in shaping EMU accession (e.g., Gabel 1998) as it was to be won over (e.g., Collignon and Schwarzer 2003). In both scenarios, the German narrative of Stability Culture would expect public opinion in Eurozone countries to place a higher priority in the 'fight against inflation'.

We further control for a host of factors at both the individual and the national level. At the individual level we include the controls AGE (age of respondent), UNEMPLOYED (unemployment status dummy), EDUCATION (years of education), and MALE (gender dummy). Based on the Barro-Gordon Model (Barro and Gordon 1983), numerous studies have suggested a trade-off between inflation and unemployment (e.g., Akerlof *et al.* 1996).

Scheve (2004) finds that inflation aversion decreases with the rise in unemployment, arguing that this was broadly consistent with the specification of utility/loss functions in the literature (see also di Tella *et al.* 2001). Inflation has significant redistributive effects. In an attempt to group those disadvantaged and advantaged from inflationary policies — and therefore those more or less inflation averse — it is helpful to look at four key individual-level characteristics: age, employment status, education, and gender. First, ‘those on fixed incomes and limited political clout, such as pensioners or dole recipients, generally lose out’ (Burda and Wyplosz 2005: 417). Both groups are likely to be more sensitive to a decrease in the real value of money with unemployment benefits and pensions not being automatically inflation-adjusted (cf. Farvaque and Mihailov 2009). Women are in more volatile employment situations than men which may be why they tend to place less priority on curbing inflation than men (although see Bryan and Venkatu 2001). Education should be considered a common indicator of ‘both labor market skills and cognitive abilities’ (Scheve 2004: 11). It is however not clear how education would play into inflation aversion (Jayadev 2006). On the one hand, less educated individuals may be more concerned about unemployment (vs. inflation). On the other hand, more educated individuals may find it easier to protect themselves against the costs of inflation, generating a negative relationship between education and inflation aversion.

At the national level we control for the broader economic climate and include the variables INFLATION<sup>12</sup> (the inflation rate),  $\Delta$ GDP (the change in gross domestic product) and DEBT (national debt to GDP ratio). We include the debt to GDP ratio to control for the allegedly inflationary effects of (unsustainable) debt levels (e.g., Suzuki 1993). Governments, so the conventional wisdom goes, would push for inflationary policies to reduce their debt burdens. In monetary union the inflation-debt link is slightly different. Here, according to the popular concern, unsustainable debt burdens would oblige the ECB

to act as a lender of last resort buying government bonds. This would increase the money stock and increase the risk of inflation. In both scenarios, outside or inside EMU, high debt levels are thought to indicate a bigger risk for inflationary policies and thus increase the inflation aversion of a population. The variable INFLATION controls for the assumed positive link between actual inflation and inflation aversion. The measures for unemployment and GDP growth further control for the economic climate which is likely to influence inflation aversion.

### *Econometric model*

For the individual level model we use a logit regression appropriate for the binary nature of our dependent variable. Merging individual-level observations with country-level economic factors introduces the possibility that disturbances will be correlated across countries. Moulton (1990) shows that standard errors from a usual maximum likelihood estimation can be biased seriously downwards if the disturbances are correlated within the groupings that are used to merge individual-level with country-level data. We therefore cluster standard errors by country. This requires the weaker assumption that errors are independent across countries but not necessarily across survey respondents within a given country. Unit root tests suggest that the series in all models is stationary.

In order to explore the determinants of inflation aversion at the country level we use random effects. Fixed-effects estimations may be better suited in time-series cross-sectional data with a time series of  $T \rightarrow 30$  (Judson and Owen 1999) — our panel covers only 10 years at most (less for new EU Member States). To test formally which model is more appropriate for the data analysis, we conducted the Hausman test — both for the full EU and for the Eurozone panel which is usually applied in the literature (Hsiao 1986). The Hausman test examines the null hypothesis that the coefficients estimated by the random-effects estimator are not systematically different from the ones estimated by the fixed-effects



estimator. Results suggest that the null hypothesis cannot be rejected ( $Prob > \chi^2 = 0.217$  for the EU model and  $Prob > \chi^2 = 0.756$  for the Eurozone model) and so we choose the random effects model, which gives efficient and consistent estimates of coefficients in our case. A further advantage of random effects models is that we are able to estimate time-invariant dummies. The very core of our empirical analysis consists of testing the statistical significance of three variables that do not change, or change little, over time — namely NORTH, SOUTH and EURO.<sup>13</sup> The confirmation of the use of a random effects model is in line with our intuition that inflation aversion is influenced by differences across countries. Our main model, where matrices I and E comprise individual and economic controls, is as follows:

$$\text{Inflation Aversion}_{i,t} = \beta_0 + \beta_1 \text{NORTH}_{i,t} + \beta_2 \text{SOUTH}_{i,t} + \beta_3 \text{I}_{i,t} + \beta_4 \text{E}_{i,t} + \varepsilon_{i,t}$$

## Empirical Results

The logit regression coefficient estimates of the individual level model are reported in Table 2 and random effects coefficient of the country level model are reported in Table 3. Our results strongly suggest that the distinction between northern states with an allegedly strong, and southern states with an allegedly weak Stability Culture, as expressed in high and low inflation aversion, is a myth. In no specification is the SOUTH variable either individually or jointly significant. Conversely, the NORTH variable suggests that this country group puts *less* priority on the fight against inflation (between 6 and 10% depending on the model).

The results of all models suggest that the economic context has a substantial impact on the public's inflation aversion. As expected, the inflation rate has a strong and significant

impact on inflation aversion (cf. Berlemann 2014; Ehrmann and Tzamourani 2012; Scheve 2004). We find that higher debt levels lead to an increase in inflation aversion, whereas GDP growth reduces inflation aversion (yet only for our country-level models). The negative and significant coefficient for the UNEMPLOYMENT variable for the Eurozone subsample in the Eurozone logit and both fixed effect models lends credence to the view that high unemployment rates lead to a decrease in inflation aversion. This is line with the existing literature. Scheve (2004), for instance, argues that as unemployment rises, reducing unemployment becomes a greater priority, achieving which makes rising inflation potentially more acceptable. However, we find that on the individual-level, being unemployed increases the probability of being inflation averse by 1%. Berlemann (2014) shows a similar mismatch between the sign of individual unemployment and national unemployment figures. Our results suggest that less educated individuals are less inflation averse than more educated individuals which is in line with, inter alia, van Lelyveld (1999) and Easterly and Fischer (2001). For every year of education, the probability of being inflation averse is reduced by 1 percent. Contrary to Scheve (2004) and Jayadev (2006), we find that women are more concerned about price stability than men, which is in line with Berlemann (2014) and Ehrmann and Tzamourani (2012). However, surprisingly, and contrary to the existing literature, the AGE variable, while statistically significant, has a negative impact on inflation aversion. This result still holds when we split the variable into aggregate groups or include the squared term to model a non-linear relationship. Its marginal effect is small so age does not seem to be a main driver of inflation aversion. Our finding thus suggests that the ageing of national populations should not increase inflation aversion. Furthermore, this result is interesting as it contradicts the view that because inflation aversion is a function of a population's experience with high inflation, popular inflation aversion should decrease with years of price stability (Ehrmann and Tzamourani 2009, although see van Lelyveld 1999). This is not the case: our data shows that across the

EU, inflation aversion is fairly constant over the timespan of this analysis and reached a 9 year high during the Great Recession; and that the younger generation is slightly more likely to be inflation averse than the very old, many of whom lived through periods of high inflation. This finding runs counter to Ehrmann and Tzamourani's concern (2009: 21) that the 'mandate could possibly erode over time, due to the central banks' own successes in taming inflation, thus lowering the sensitivity of the public towards rising prices'.

The marginal effects of our logit model suggest that that inhabitants of the Eurozone are 11 per cent more likely to be inflation averse than inhabitants of EU Member States that have not adopted the single currency. This result is confirmed by our country-level model. This in itself is not sufficient evidence to claim convergence towards a policy consensus on the importance of price stability within the Eurozone as discussed in the literature. There are several other possible explanations of higher inflation aversion in the Eurozone. For instance an increase in inflation aversion may be linked to mistrust in the Central Bank in EMU Member States.<sup>14</sup> To test this, we split our individual-level Eurozone sample into two groups: the first indicated that they do not trust or tend not to trust the ECB; the second noting trust for the central bank. If we split the whole EU sample according to trust in the ECB results are virtually identical. Our results, presented in Table 4, strongly suggest that the positive impact of Eurozone membership on inflation aversion is not due to mistrust in the Central Bank. When using the entire EU sample and including the variable EURO in both EU samples (split again according to trust of the ECB), the coefficients for EURO are statistically identical to those of the full model presented in Table 2. Results from these two sub-groups furthermore corroborate our main finding challenging the Stability Culture narrative. Respondents in the alleged stronghold of Stability Culture are less inflation averse than the rest of the Eurozone, whether or not they trust the ECB.

## Robustness tests

We furthermore test whether our model may be biased due to the inclusion of the period of the Great Recession (2008-2010). Has the financial crisis changed the way in which our independent variables affect inflation aversion? We know from the literature that public opinion is not necessarily a constant function but may display non-linearities, especially in the event of political or economic crises (e.g., Bernhard and Leblang 2005, Ojeda 2014). We re-estimate our main models both at the country and at the individual level for the 2002-2007 period only (see appendix: Tables 1a and 2a). Results hold. Our finding is in line with other investigations into public opinion models on EMU related issues which include post 2008 data (cf. Wälti 2012, Roth *et al.* 2012).

A further source of bias may stem from the construction of the variables NORTH and SOUTH. The selection of these country groups, although to a certain extent intuitive, may introduce the problem of simultaneous equation bias in our estimations. Specifically these countries were attributed group membership based on their allegedly low or high inflation aversion. This introduces the bias of reversed causality; inflation aversion explains group membership and not vice versa. To deal with the resulting potential endogeneity we use an instrumental variable approach (Baum *et al.* 2010). For this approach we need to identify instrumental variables. In our case, beer consumption per capita (BEER) and the number of olive plantations (OLIVE) are such instruments (see Appendix): they are strongly correlated with the country group dummies, but have no effect on individuals' inflation aversion. For the main regression, the under-identification test (Kleibergen–Paap rk LM statistic) rejects the null hypothesis of under-identification on the 1 percent level — the excluded instruments are relevant, as they are correlated with the endogenous regressors. We then proceed to test for endogeneity in the variable estimated with instrumental

variables; the results of this test show that the null cannot be rejected at the ten per cent level: endogeneity of the variables NORTH and SOUTH does not seem to be a problem in this analysis. We used the same instrumental variable approach to confirm that none of our included macroeconomic controls (inflation, change in GDP, unemployment, debt levels) are endogenous. Here we relied on lagged values as instruments and are able to confirm that endogeneity is not a problem for the variables in question.

## **Conclusion**

Fostering a new European ‘Stability Culture’ – that is an economic policy perspective whose primary concern is price stability — was the ideational element of the German government’s official remedy to the Eurozone Sovereign Debt Crisis which erupted in 2009. This forms part of a deliberate communication strategy by Christian Democrats that presented German Stability Culture as the source of the country’s economic success and a lack of said culture (as opposed to, for example, regulatory failure in the financial sector) as the main culprit for the Sovereign Debt Crisis (Howarth and Rommerskirchen 2013). This narrative has pitted the allegedly prudent North against the profligate South. Our article challenges this crisis narrative presented by the Christian Democrats in the German federal government and vocally supported by the ECB (e.g., Draghi 2012) and the European Commission (e.g., Barroso 2011). Using Eurobarometer survey data, our study systematically assesses inflation aversion in the 27 EU Member States. Our results strongly suggest that the distinction between northern states with an allegedly strong and southern states with an allegedly weak Stability Culture — as expressed in high and low inflation aversion — is a myth.

Yet the promotion of Stability Culture is likely to remain in European discourse, irrespective of the accuracy of its associated diagnosis and the efficacy of its associated treatment. For German Christian Democrat politicians, the identification of solutions to the Eurozone's woes in terms of fiscal austerity and price stability has been a useful shield against widespread criticisms of Germany's massive current account surplus and export-led growth model. The insistent focus on Stability Culture has also been used to legitimize opposition to further European integration in the form of transfer union — and to dilute a range of mechanisms proposed to provide financial support to Eurozone periphery sovereigns and banks. The ECB and the European Commission are willing promoters of the concept of Stability Culture due to their strongly anchored institutional responsibilities, and notably the ECB's mandate of price stability and the surveillance of fiscal policies under the Stability and Growth Pact, the first a replication of the German Bundesbank's mandate; the second a pacifier for the German electorate anxious over the loss of the deutschemark. The conclusions of the analysis presented in this paper encourage the adoption of a different discourse. Presenting the need to construct a common Stability Culture in the Eurozone as a panacea to the sovereign debt crisis is factually wrong. This discourse also undermines the legitimacy of the EMU project — by reinforcing perceptions of difference and superiority and, ultimately, endangers the sustainability of the single currency.

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## Appendix. Variable description and data source

INFLATIONAVERSION: Variable is based on the question ‘What do you think are the two most important issues facing (OUR COUNTRY) at the moment?’ ‘What do you think are the two most issues’, tiftung Herbert Quandt, Washington D.C., April 15.versity of Göttingen.<http://afd-berlin.eu/wp/wp-content/uploads/2014/01n>, health care system, educational system, pensions, environment protect, energy [added since 2007] others). For the logit models, dummy variable, equal to 1 if inflation is mentioned, 0 otherwise; for the country-level model percentage of respondents in a country in a given year naming inflation. Source: Eurobarometer 57.1, 57.2, 60.1, 61, 63.4, 65.2, 67.2, 69.2, 71.3, 73.4.

INFLATION: Based on the harmonised consumer price index (HCPI) , 2005 = 100. The HCPI measures changes over time in the level of prices of goods and services, used and paid by residents for consumption. The HICPs are designed for international comparison of consumer price inflation.  $INFLATION = ((HCPI - 1.HCPI)/1.HCPI)*100$ . Source: AMECO database.

DEBT: General government debt as percentage of at market prices. Source: AMECO database.

UNEMPLOYMENT: Unemployment rate, total (percentage of civilian labour force). Source: AMECO database.

$\Delta$ GDP: Gross domestic product, constant prices (percent change). Source: AMECO database

EDUCATION: Ordered categorical variable with nine categories corresponding to increasing years of formal education. Source: Eurobarometer 57.1, 57.2, 60.1, 61, 63.4, 65.2, 67.2, 69.2, 71.3, 73.4.

AGE: Exact age of respondent. Source: Eurobarometer 57.1, 57.2, 60.1, 61, 63.4, 65.2, 67.2, 69.2, 71.3, 73.4.

MALE: Dummy variable, equal to 1 if respondent is male, and 0 otherwise. Source: Eurobarometer 57.1, 57.2, 60.1, 61, 63.4, 65.2, 67.2, 69.2, 71.3, 73.4.

UNEMPLOYED: Dummy variable, equal to 1 if respondent is unemployed or temporarily not working, and 0 otherwise. Source: Eurobarometer 57.1, 57.2, 60.1, 61, 63.4, 65.2, 67.2, 69.2, 71.3, 73.4.

EURO: Dummy variable, equal to one if country is member of the eurozone; and 0 otherwise.

TRUSTECB: Variable based on the question: 'Do you tend to trust or tend not to trust the European Central Bank?' able based on the question: 'Do you tend to trust or tend not to trust the European .3, 73.4. 60.1, 61, 63.4, 65.2, 67.2, 69.2, 71.3, 73.4. Source: AMECO database.v

SOUTH: Dummy equal to 1 for Portugal, Ireland, Italy, Greece and Spain; 0 otherwise.

NORTH: Dummy equal to 1 for Germany, Austria, the Netherlands, and Finland; 0 otherwise.

BEER: Annual beer consumption per capita. Source: Brewers of Europe.

OLIVE: Olive plantations, number of farms per country. Source: Eurostat.

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<sup>1</sup> Schlesinger is thought to have coined the term Stability Culture: ‘Sound money needs not only a stability oriented policy by central bankers and the government [...] it needs a Stability Culture in the public and in politics’ (*Börsen-Zeitung*, 1 February 1992).

<sup>2</sup> Hans-Olaf Henkel, the former head of the Federation of German Industries (BDI), suggested thus that the solution to the Debt Crisis is to be found in Germany, Finland, Austria and the Netherlands exiting the common currency and creating their own monetary union (*Financial Times* 29.8.2011).

<sup>3</sup> The Stability and Growth Pact sets budgetary rules which apply to all EU Member States. Specifically, in both its original and reformed versions, it stipulates a deficit to GDP threshold of 3 per cent and a debt level threshold of 60 per cent of GDP.

<sup>4</sup> This link does however exist in another country: Greece. For an account of the Greek hyperinflation of 1944 and German occupation see Lazaretou (2005).

<sup>5</sup> Evidence from EU countries is presented in a 2007 Eurobarometer survey (Eurobarometer 67.2) in which respondents were asked to indicate the actual inflation rate of their country. It seems that knowledge about inflation is characterised by a high degree of ignorance, with 51 per cent of the sample not being able to provide an estimate. Of those attempting an estimate, 93.85 per cent were wrong. In comparison, knowledge about the true unemployment rate was slightly better, with 8.48 per cent of respondents giving approximately correct answers. Interestingly, respondents in Greece displayed a greater knowledge about their country’s inflation rate (12.7 per cent had correct answers) than those in Germany (5.22 per cent had correct answers). This may be explained by the higher inflation rate in Greece (compared to Germany) in 2007 as well as historically higher inflation rates — a relationship suggested by the coefficient of the correlation between the percentage of respondents guessing inflation wrong and the actual inflation rate in 2007 (n=27, r= -0.12).

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<sup>6</sup> Note also that the measurement of inflation aversion used in this study has as an advantage that the respondents are not asked to make a highly quantitative judgment of price stability itself.

<sup>7</sup> The options were: crime, public transport, economic situation, rising prices/inflation, taxation, unemployment, terrorism, defense/foreign affairs, housing, immigration, health care system, educational system, pensions, environment protect, others. Since 2007, ‘energy’ has been included as the penultimate option.

<sup>8</sup> However, one strength of our analysis in relation to others is that our measurement of inflation is based on one source only — Eurobarometer. Thus, our analysis avoids the problem of merging different data sets.

<sup>9</sup> Scheve’s panel is strongly unbalanced. For instance, survey results for Greece are only included for the year 1997. A similar caveat applies to Ehrmann and Tzamourani (2012).

<sup>10</sup> Data unavailability prevents us from fully analysing the impact of EMU membership as Eurobarometer data pre-EMU is discontinuous — the first wave of collection covered the 1976-1993 periods and the second 2003-2006 — and the wording of the questionnaire was changed during the time span of the analysis.

<sup>11</sup> Results remain the same with Ireland excluded and Luxembourg included in these groups respectively.

<sup>12</sup> Empirical results strongly suggest that inflation expectations are the key ingredient of the inflationary process. Paloviita and Viren (2005) find that innovations in expectations account typically for more than one-third of the (forecast) variance of inflation. The main mechanism for this inflation expectations-inflation-loop is wages. When firms and employees negotiate wages and when companies set their prices, they regularly take their inflation expectations into account. If inflation is expected to be high, employees might push for a higher wage increase, firms' costs increase, which in turn could be passed on to customers through higher prices. In short, inflation expectations can turn into a self-

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fulfilling prophecy; if people expect inflation, their behaviour can lead to inflation. To control for this we included various lags of inflation, which resulted in no substantial change of the results. It seems however that people's inflation aversion is determined by their short-term perception of actual inflation as the magnitude of both coefficients declines with every lag introduced, as does its significance.

<sup>13</sup> The fixed-effects model controls for all time-invariant differences between the countries in the panel, so the estimated coefficients of the fixed-effects models cannot be biased because of omitted time-invariant characteristics. Time-invariant characteristics of a given country are collinear with the country dummies. Analysing the causes of inflation aversion across countries, a time-invariant characteristic, like belonging to the SOUTH cluster, cannot cause inflation aversion, because it is constant for each country.

<sup>14</sup> Trust in the ECB and inflation aversion could run both ways. On the one hand, mistrust in the ECB could relate positively to inflation aversion as respondents might be afraid that the ECB will not be able to do as good a job as the Bundesbank in tackling inflation. On the other hand, mistrust in the ECB might also reflect scepticism towards the ECB's singular mandate of price stability and therefore relate negatively to inflation aversion.